APPENDIX G
Environmental

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

Environmental Resources Branch

DRAFT

FINDING OF NO SIGNIFICANT IMMPACT
for the
PUBLIC LAW 84-99 RECLAMATION DISTRICT 765, CALIFORNIA

I have received and evaluated information presented in this Environmental Assessment/Initial Study (EA/IS) prepared for the proposed levee repairs under Public Law 84-99 within Reclamation District 765, Yolo County, California. I have considered the views of the other interested agencies, organizations, and individuals concerning these proposed sites.

The possible consequences of conducting the work described in the EA/IS have been studies with consideration given to environmental, socioeconomic, cultural, and engineering feasibility. The environmental effects have been thoroughly coordinated with the U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS), and The Reclamation Board of the State of California.

Endangered species in the project area include the federally listed valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB), green sturgeon (*Acipenser medirotris*), Central Valley steelhead (*Onocorhynchus mykiss*), Central Valley spring-run chinook salmon and winter-run chinook salmon (*Onocorhynchus tshawytscha*), and delta smelt (*Hypomesus transpacificus*). The Corps is currently in consultation with FWS for the VELB. The elderberry shrubs provide critical habitat for the VELB. Shrubs located in project area would be transplanted outside of the transplantation window for the VELB. The Corps would take appropriate mitigation measures as provided in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* released by FWS in July, 1999. No impacts to the listed anadromous fish species are expected.

Based on my review, I have determined that the proposed modifications, including access routes and staging areas, would have no significant effects on environmental or cultural resources.

Based on these considerations, I am convinced that there is no need to prepare an environmental impact statement. Therefore, an EA and finding of no significant impact provide adequate environmental documentation for the proposed action under the National Environmental Policy Act.

_____ _____

Date

Ronald N. Light
Colonel, U.S. Army
District Engineer

Environmental Assessment/Initial Study

Public Law 84-99
Reclamation District 765
Sacramento River
Yolo County, California

November 2007

U.S. Army Corps of Engineers

Need for the Proposed Action

Between 28 December 2005 and 9 January 2006, the State of California experienced a series of severe storms, which damaged the levees within the Sacramento District's boundaries. Water rose a second time in April 2006 and high water remained in some parts of the system until June 2006. Many rivers and streams within the Sacramento and San Joaquin River Basins ran above flood stage during these events, and there were significant erosion and seepage problems with the levees. The State of California Department of Water Resources and/or their maintaining agencies conducted flood fight activities while the U.S. Army Corps of Engineers (Corps) has been working with the State to restore the levee systems to pre-storm conditions. These efforts have been conducted under the authority of Public Law (PL) 84-99, Rehabilitation of Damaged Flood Control Works.

High flow in the Sacramento River in December 2005 and January 2006 saturated the waterside levee slope; destabilizing sections of the levee within Reclamation District (RD) 765 (see Plate 1). Erosion of the levee embankment and loss of existing riprap were observed during a site visit by the Corps in 2006. The damages are extensive and may result in continued deterioration and loss of the levee, leaving the area unprotected for the next flood event. The Sacramento River located in Yolo County, California, is located north of Clarksburg, California. The Sacramento River west levee, managed by the RD 765, protects the town of Clarksburg, California. A breach in the levee system may flood the entire area with potential for loss of lives and adverse economic impacts. The descriptions of damaged sites are as follows:

Sacramento River, West Bank Levee, Site No. 002. Wave wash and toe erosion into the standard levee cross section occurred along a 120 foot reach of the Sacramento River, West Bank Levee. Erosion reached 2 to 3 feet in height. Existing riprap was lost or damaged (see Plate 2). Restoration of the levee is considered an emergency since the stability of the embankment is reduced and damages may be exacerbated during the next heavy rain event.

Sacramento River, West Bank Levee, Site No. 003. Wave wash and toe erosion into the standard levee cross section occurred along a 500 foot reach of the Sacramento River, West Bank Levee. Erosion reached 3 feet in height. Existing riprap was lost or damaged by the flood events (see Plate 3). Restoration of the levee is considered an emergency since the stability of the embankment is reduced and damages may be exacerbated during the next heavy rain event.

Sacramento River, West Bank Levee, Site No. 004. Wave wash and toe erosion into the standard levee cross section occurred along a 130 foot reach of the Sacramento River, West Bank Levee. Erosion reached 2 to 3 feet into the levee slope. Existing riprap was lost or damaged by the flood events (see Plate 4). Restoration of the levee is considered an emergency since the stability of the embankment is reduced and damages may be exacerbated during the next flood event.

Sacramento River, West Bank Levee, Site No. 005. Wave wash erosion and toe erosion into the standard levee cross section occurred along a 90 foot reach of the Sacramento River, West Bank Levee. Erosion reached up to 5 feet into the levee slope. Existing riprap was lost or damage by the flood events (see Plate 5). Restoration of the levee is considered an emergency since the stability of the embankment is reduced and damages may be exacerbated during the next flood event.

Sacramento River, West Bank Levee, Site No. 006. Wave wash and toe erosion into the standard levee cross section occurred along a 175 foot reach of the Sacramento River, West Bank Levee. Erosion reached up to 5 feet into the levee slope. Existing rock protection of the waterside slope was lost or damaged (see Plate 6). Restoration of the levee is considered an emergency since the stability of the embankment is reduced and damages may be exacerbated during subsequent flood events.

Alternatives

No Action

The National Environmental Policy Act (NEPA) requires that the lead agency, the Corps, present a no-action alternative that establishes the baseline conditions against which the action alternatives are compared. The no-action alternative is used to analyze beneficial and adverse effects, measure level of impact significance, and enable the Corps to make informed and reasoned decisions. Under the no-action alternative, the Corps would not repair the damaged levees; the RD would be the responsible party for providing all funding and/or work required for final repairs of flood damages. Possible delays or "no action" (not repairing the erosion and wave wash damages) would allow the levees to continue eroding until they would ultimately fail during the next, or subsequent flood events.

This Sacramento River West Bank levee is protecting an urban area where lives are at risk and where there may be adverse economic impacts. Without any repairs the entire flood control project is reduced to a single year frequency event. Due to the reasons stated above, this alternative is not recommended and therefore, not carried further in this document.

Proposed Action

The Corps has inspected the damages at the five sites along the Sacramento River West Bank levee and determined the following repairs would be the most effect way to repair the sites. No other alternatives have been designed for analysis in this document.

Sacramento River, West Bank Levee, All Sites. The eroded waterside levee slope, for an intermittent 1,015 foot reach, would be excavated in steps at least ½ foot beyond the damaged surface. The slope would be reconstructed with compacted impervious fill. The reconstructed slope would be covered with a 6 inch layer of bedding material and the lost rock protection would be restored to the height and thickness of the

adjacent undamaged area (see Plate 7). Small vegetation along the waterline and levee slope would be removed in order to reconstruct the levee. The large trees along the waterline and levee slope would be left in place and willow pole cuttings would be planted along the water's edge at sites that do not currently have shrubs along the waterline.

Environmental Impacts of the Proposed Action

Traffic. The project is located along South River Road in a rural area of Yolo County. During construction truck traffic along South River Road would increase as material is brought into the site for repairs. This traffic is expected to have a short term impact on local traffic and would last only as long as project construction. Once the project is completed the traffic would return to the existing level. The contractor would implement best management practices to minimize the affects of project construction to local traffic. Project construction would begin in the summer of 2007 and be completed by November 2007. The staging areas would be determined by the contractor manager. The staging area would be selected to have minimal impacts to traffic and wildlife. No permanent adverse impacts would result from the staging area.

Water Quality. During construction of the new levee slope, small amounts of debris could fall into the Sacramento River. Water levels are low and water would be slow moving at the time of year when construction would occur. Any sediment that falls into the water would most likely settle out and not move through the system. Best management practices, such as using coir mats and hydroseeding disturbed areas, would be used to reduce the risk of debris entering the water. Construction equipment maintenance would not occur at the project site to reduce the possibility of discharge of mechanical and chemical waste from entering into the river. The surface water or groundwater quality is not expected to change from existing conditions with the Proposed Action. Construction of the project would not degrade ambient water quality conditions in any manner.

Cultural Resources. On December 20, 2006, to comply with Section 106 of this National Historic Preservation Act (NHPA), and in consultation with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation, the Corps executed a Memorandum of Agreement (MOA) for the Order 3, 4 and 5 PL 84-99 projects. The MOA stipulates a series of steps to take in order to take into account the effects of the project on historic properties. It also determines that for the purposes of the undertaking only, the Sacramento and San Joaquin River Basins levee system will be considered eligible for listing in the National Register of Historic Places (NRHP).

In order to obtain a determination of no adverse effect on the levee systems, the MOA allows that when the levee repairs will restore the original prism shape of the levee, the project will not adversely affect historic properties. When the levee or associated features are the only historic properties that will be adversely affected by the proposed project, the Corps will prepare documentation similar to the Historic American Building Survey/Historic American Engineering Record (HABS/HAER) Level IV inventory cards

showing the historic property before and after levee repair. Additionally, as stipulated by the MOA, potentially interested Native American will be sent letters asking for their comments and information on areas of concern.

A records and literature search for this presence of cultural resources within the area of potential effects (APE) was conducted at the Northwest Information Center of the California Historical Resources Information System, located at California State University, Sonoma on December 13, 2006. The search was negative for known cultural resources within the APE. Field inspections of the APE will be conducted before project construction and any historic properties discovered will be treated in accordance with the MOA. As stipulated by the MOA: (1) if the levee is the only historic property discovered within the APE it will be documented, and (2) if any other unknown cultural resources within the APE that cannot be avoided by project construction are discovered during field inspections, they will be inventoried, evaluated, and their eligibility to the NRHP will be consulted on separately with SHPO. Because the MOA has been executed the project is in full compliance with Section 106 of the NHPA.

Vegetation and Wildlife. Approximately 1,015 feet of damaged levee will be removed intermittently to reconstruct the levee. Currently, small shrubs, large trees, and grasses grow on the levee and within the cut face of the damaged area. Some large trees would be trimmed to allow access for construction equipment. Construction activities would result in a loss of vegetation and shaded riverine habitat along the Sacramento River. This vegetation provides habitat for birds, mammals, and fish. The sites would be planted with willow pole cuttings to re-establish this habitat.

The levee slopes are overgrown with grasses and weedy vegetation. This vegetation would be removed by construction activities. The construction area would be reseeded with native grasses to prevent erosion into the river. Field visits with U.S. Fish and Wildlife Service (FWS) in March 2007 concluded that the installation of willow pole cuttings would result in a net benefit to wildlife and fisheries at the site. See Appendix A for a copy of the FWS Planning Aid Letter for this project.

Endangered Species. A field visit with FWS in March 2007 determined that the Federally endangered valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB) delta smelt (*Hypomesus transpacificus)* are likely to be in the project area. The Corps is currently consulting with FWS for the listed species. There are three elderberry shrubs present at site 003. These shrubs provide critical habitat for the VELB. The Corps is currently in consultation with FWS regarding the VELB. To repair the site the Corps would transplant the shrubs to another location and undertake mitigation measures for transplanting the shrubs outside of the transplantation window for the shrubs. The Sacramento River at RD 765 is designated critical habitat for the delta smelt. The fish use the Sacramento River as an adult and juvenile migration corridor and for juvenile rearing. Construction activities would occur within the work window for delta smelt and project activities would not result in the removal of shaded riverine habitat. The planting of willow pole cuttings at sites without shaded riverine habitat would have a

net beneficial affect on the delta smelt. Project construction would not likely adversely affect the listed delta smelt.

Coordination with National Marine Fisheries Service (NMFS) occurred in March 2007. The Sacramento River is considered critical habitat for the Federally listed green sturgeon (*Acipenser medirostris*), Central Valley steelhead (*Onocorhynchus mykiss*), Central Valley spring-run chinook salmon (*Onocorhynchus tshawytscha*), and the Central Valley winter-run chinook salmon (*Onocorhynchus tshawytscha*). The project area is used by these anadromous fish species as an adult and juvenile migration corridor and for juvenile rearing. Project construction would occur during a time when the listed species could be present. However, work at each site would result in the fish species moving to other areas of the river. Project construction would be occurring within the construction windows for each of the listed fish species. Since construction would not result in the removal of the large trees and the lower vegetation would be replaced, no impacts to critical habitat or the fish species area expected. The Corps will request concurrence from NMFS of a not likely to adversely affect these species before construction activities begin.

Conclusions

The proposed alternative for each site would have only temporary affects to traffic, cultural resources, vegetation and wildlife. The elderberry shrubs that provide critical habitat for the endangered VELB would be transplanted. Transplanting would occur outside of the transplantation window. Impacts to the VELB would be mitigated in accordance to the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* issued by Fish and Wildlife Service in July 1999. Conservation measures for transplanting the elderberry shrubs outside of the approved window would result in a conservation rate 2.5 times that of the approved work window rate, as stated in the FWS conservation guidelines. Planting of willow pole cuttings would provide habitat for endangered fish species and other wildlife in the area. Because no significant impacts are expected, a draft Finding of No Significant Impact (FONSI) is included as part of this document for review.

Agencies and Persons Consulted

U.S. Fish and Wildlife Service, - Doug Weinrich, Chief, Habitat Conservation Division, Sacramento Fish and Wildlife Office

National Marine Fisheries Service, - Madelyn Martinez, Fisheries Biologist, Sacramento Area Office

State Historic Preservation Officer, Office of Historic Preservation, - Dwight Dutschke, Associate Park & Recreation Specialist; David Byrd, State Historian

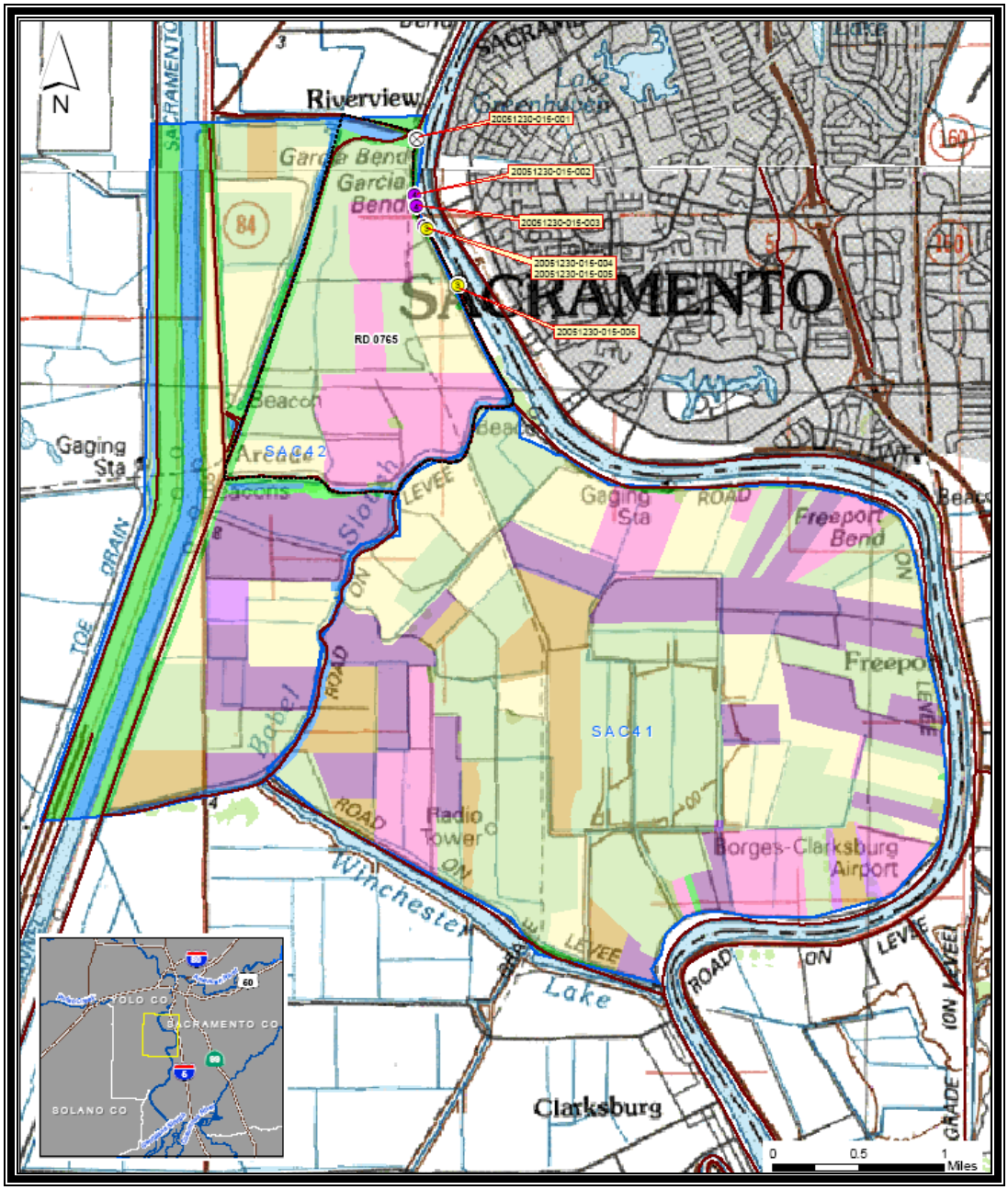


Plate 1 – Map of Project Area and Repair Sites

Plate 2 – Damage on Sacramento River, Site 002

Plate 3 – Damage on Sacramento River, Site 003

Plate 4 – Damage on Sacramento River, Site 004

Plate 5 – Damage on Sacramento River, Site 005

Plate 6 – Damage on Sacramento River, Site 006

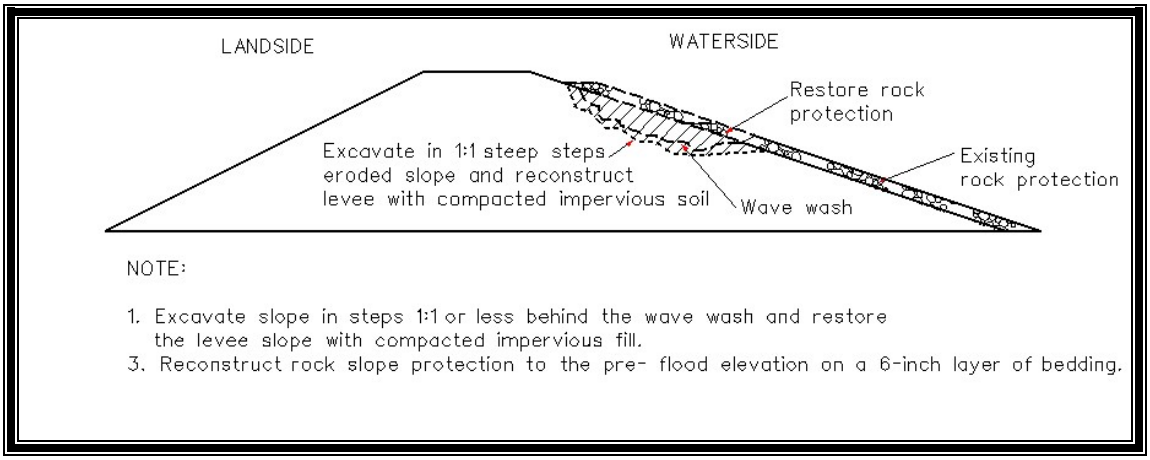


Plate 7 – Repair Alternative Cross Section

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:

MAY 1 2007

Mr. Frank Piccola
Chief, Planning Division
Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Dear Mr. Piccola:

Enclosed is the Fish and Wildlife Service's Planning Aid Letter for the Order 3 and 4 levee repairs proposed by the Corps of Engineers for RD 765 in Yolo County, California. This work is being conducted under the authority of Public Law 84-99 for damages which occurred during high flows in 2006.

If you have any questions regarding this project, please contact Doug Weinrich at (916) 414-6563.

Sincerely,

Michael B. Jaffe

David L. Harlow
Acting Field Supervisor

Enclosure

cc:
Howard Brown, NOAA Fisheries, Sacramento, CA
Liz Holland, COE, Sacramento, CA
Reg. Mgr., CDFG, Rancho Cordova, CA
Reclamation Board, Sacramento, CA

PLANNING AID LETTER

on

2006 PL 84-99 Levee Repairs, Reclamation District 765, Yolo County, California

April 25, 2007

This is the Fish and Wildlife Service's (Service) Planning Aid Letter on the effects that proposed Order 3[1] and 4[2] levee repairs would have on fish and wildlife resources along west levee of the Sacramento River in Reclamation District (RD) 765. This report has been prepared under the authority of, and in accordance with, the provisions of the Fish and Wildlife Coordination Act (48 stat. 401, as amended: 16 U.S.C. 661 et seq.). Repair work on these sites would be completed using funding for California levee repairs under Public Law 84-99 (PL 84-99), Rehabilitation of Damaged Flood Control Works.

BACKGROUND

Between December 28, 2005, and January 9, 2006, the State of California experienced a series of severe storms which damaged the levees within the boundaries of the Sacramento District of the Corps of Engineers (Corps). Water rose a second time in April 2006 and high water remained in some parts of the system until June. Many rivers ran above flood stage during these events, and there were significant erosion and seepage problems with the levees. The State of California Department of Water Resources and/or their maintaining agencies conducted flood fight activities while the Corps provided technical assistance. Since the storms, the Corps has been working with the State to restore the levee systems to pre-storm conditions. These efforts are being conducted under the authority of PL 84-99.

There are site locations with damages severe enough to constitute an imminent threat of levee failure in the Sacramento and San Joaquin Basins. This degree of damage has been identified at more than 80 sites along the Sacramento Basin levee system, extending from Tehama County in the north to Sacramento County in the south. More than 20 additional sites in the San Joaquin Basin meet the definition of severely damaged. Because of the high risk of catastrophic damages, the repairs will be completed on an emergency basis and qualify for emergency procedures in accordance with the applicable regulations of the Corps (ER 200-2-2 and ER 500-1-1).

Damage sites that do not meet the criteria for severely damaged and are not in imminent threat of failure will be repaired as soon as possible, but not under an emergency basis. This site is in the latter category.

DAMAGE DESCRIPTION

High water in the Sacramento River in late December 2005/January 2006 saturated the levee soil and destabilized sections of the waterside levee slope causing erosion scarps and wave wash damage. Damages occurred at six sites which are summarized in Table 1. The damages are not

1 An Order 3 designation means damages are severe, but may extend into the next flood season because they are less likely to lead to levee breaches.

2 An Order 4 designation means damages are minor and may be exacerbated during the next flood, but will not lead to the loss of the levee embankment

Table 1. Summary of the proposed Order 3 and 4 PL 84-99 levee repairs in Reclamation District 765, Yolo County, California

Site Number	Levee Mile	Length (feet)	Order	Existing Rock Protection
SN#20051230-015-001	0.010-0.016	264	*	yes
SN#20051230-015-002	0.364-0.385	120	4	yes
SN#20051230-015-003	0.417-0.504	500	4	yes
SN#20051230-015-004	0.525-0.548	130	4	yes
SN#20051230-015-005	0.565-0.582	90	3	yes
SN#20051230-015-006	0.938-0.962	175	3	no

* The Corps damage description states this site was ruled ineligible for PL 84-99 assistance because annual inspection reports identified and determined that the damages were a result of pre-flood damage.

severe enough to provide an imminent threat to the levee and may be exacerbated in subsequent flood events.

PROJECT DESCRIPTION

Sacramento River, West Bank Levee, Levee Mile 0.01 to 0.016. This site was ruled ineligible for PL 84-99 assistance because it was determined the damages were pre-existing to the high flows based on annual inspection reports.

Sacramento River, West Bank Levee, Levee Mile 0.364 to 0.385. Wave wash and toe erosion extended along a 120-foot-long section of the waterside levee slope. The erosion reached 2-3 feet high and the existing riprap was lost or damaged.

Sacramento River, West Bank Levee, Levee Mile 0.417 to 0.504. Wave wash and toe erosion extended along a 500-foot-long section of the waterside levee slope. The erosion reached 3 feet high and the existing riprap was lost or damaged.

Sacramento River, West Bank Levee, Levee Mile 0.525 to 0.548. Wave wash and toe erosion extended along a 130-foot-long section of the waterside levee slope. The erosion reached 2-3 feet high and the existing riprap was lost or damaged.

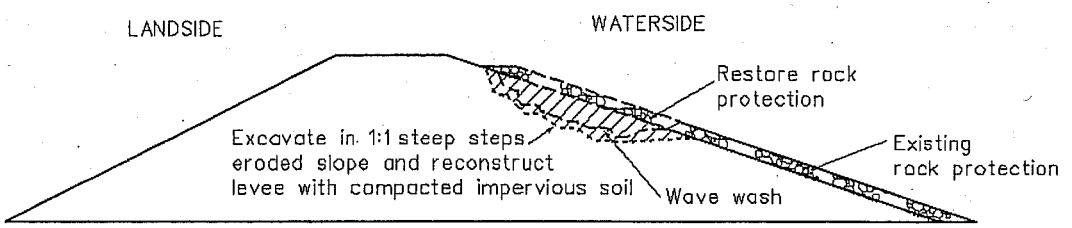
Sacramento River, West Bank Levee, Levee Mile 0.565 to 0.582. Wave wash and toe erosion extended along a 90-foot-long section of the waterside levee slope. The erosion reached up to 5 feet high and the existing riprap was lost or damaged.

Sacramento River, West Bank Levee, Levee Mile 0.938 to 0.962. Wave wash and toe erosion extended along a 175-foot-long section of the waterside levee slope. The erosion reached up to 5 feet high and the existing riprap was lost or damaged.

The proposed repair is similar for all five sites proposed for repair. The repair consists of cleaning the damaged area, backfilling the scarp with impervious fill material and restoring the rock protection on the waterside levee slop to the height and thickness of the adjacent undamaged area. The rock would be placed on a 6-inch layer of bedding material. Figure 1 shows a cross-

section of the proposed repair.

Figure 1. Typical cross-section of proposed levee repair in RD 765, West Bank Levee of the Sacramento River, Yolo County, California.



NOTE:

1. Excavate slope in steps 1:1 or less behind the wave wash and restore the levee slope with compacted impervious fill.
3. Reconstruct rock slope protection to the pre- flood elevation on a 6-inch layer of bedding.

BIOLOGICAL RESOURCES

Vegetation

The project area supports a narrow strip of riparian vegetation including mature trees with a well developed understory on the levee. The upper levee slope is mainly annual grasses, while the lower slope has more woody vegetation. This vegetation provide important cover for fish and wildlife species in this reach of the river where most of the riparian vegetation has been lost to bank protection projects.

Wildlife

The levee slope and berm provide habitat for small mammals and reptiles. Migratory birds including mourning doves and raptors such as red-tailed hawk utilize the area for foraging. Water birds such as kingfishers, egrets and herons forage along the river edge. Waterfowl, such as mallards and wood ducks, likely use the area year round although the site is highly disturbed since the actual repair sites are adjacent South River Road.

Fish

The Sacramento River supports a wide array of anadromous and resident fish species, both introduced and native. Key anadromous fish in the project area include Chinook salmon, steelhead trout, striped bass, American shad, and white sturgeon. Resident warmwater fish include largemouth bass, crappie, catfish, bluegill, tule perch, delta smelt, and a variety of sunfish.

The Sacramento River supports the largest Chinook salmon population in the State. About 90% of the Central Valley salmon population spawns in the Sacramento River system. Four genetically distinct races of Chinook salmon utilize the river: fall-, late-fall, winter-, and spring-run. Steelhead use the river as a migration corridor to and from their spawning grounds located upriver in smaller tributary streams.

Endangered Species

Based on a search of the Sacramento West and Clarksburg USGS quadrangle map there are several listed species which could occur within or near the project area. The species under the jurisdiction of the Service which may be affected by the project include the valley elderberry longhorn beetle and delta smelt and its critical habitat. The other species (anadromous fish) are under the jurisdiction of National Marine Fisheries Service (NOAA Fisheries). The complete list is included in Enclosure 1 as well as a summary of Federal agencies responsibilities under the Endangered Species Act of 1973, as amended.

DISCUSSION

Service Mitigation Policy

The recommendations provided herein for the protection of fish and wildlife resources are in accordance with the Service's Mitigation Policy as published in the Federal Register (46:15; January 23, 1981).

The Mitigation Policy provides Service personnel with guidance in making recommendations to protect or conserve fish and wildlife resources. The policy helps ensure consistent and effective Service recommendations, while allowing agencies and developers to anticipate Service recommendations and plan early for mitigation needs. The intent of the policy is to ensure protection and conservation of the most important and valuable fish and wildlife resources, while allowing reasonable and balanced use of the Nation's natural resources.

Under the Mitigation Policy, resources are assigned to one of four distinct Resource Categories, each having a mitigation planning goal which is consistent with the fish and wildlife values involved. The Resource Categories cover a range of habitat values from those considered to be unique and irreplaceable to those believed to be much more common and of relatively lesser value to fish and wildlife. However, the Mitigation Policy does not apply to threatened and endangered species, Service recommendations for completed Federal projects or projects permitted or licensed prior to enactment of Service authorities, or Service recommendations related to the enhancement of fish and wildlife resources.

In applying the Mitigation Policy during an impact assessment, the Service first identifies each specific habitat or cover-type that may be impacted by the project. Evaluation species[3] which utilize each habitat or cover-type are then selected for Resource Category analysis. Selection of evaluation species can be based on several rationale, as follows: (1) species known to be sensitive to specific land- and water-use actions; (2) species that play a key role in nutrient cycling or energy flow; (3) species that utilize a common environmental resource; or (4) species that are associated with Important Resource Problems, such as anadromous fish and migratory birds, as designated by the Director or Regional Directors of the Fish and Wildlife Service. Based on the relative importance of each specific habitat to its selected evaluation species, and the habitat's relative abundance, the appropriate Resource Category and associated mitigation planning goal are determined.

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3 Note: Evaluation species used for Resource Category determinations may or may not be the same evaluaton species used in a HEP application, if one is conducted.

Mitigation planning goals range from "no loss of existing habitat value" (i.e., Resource Category 1) to "minimize loss of habitat value" (i.e., Resource Category 4). The planning goal of Resource Category 2 is "no net loss of in-kind habitat value;" to achieve this goal, any unavoidable losses would need to be replaced in-kind. "In-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost.

In addition to mitigation planning goals based on habitat values, Region 1 of the Service, which includes California, has a mitigation planning goal of no net loss of acreage and value for wetland habitat. This goal is applied in all impact analyses.

In recommending mitigation for adverse impacts to fish and wildlife habitat, the Service uses the same sequential mitigation steps recommended in the Council on Environmental Quality's regulations. These mitigation steps (in order of preference) are: avoidance, minimization, rectification of measures, measures to reduce or eliminate impacts over time, and compensation.

Three fish and/or wildlife habitats were identified in the project area which had potential for impacts from the project: riparian woodland, annual grassland; and "other." The resource categories, evaluation species, and mitigation planning goal for the habitats impacted by the project are summarized
in Table 1.

Table 1. Resource categories, evaluation species, and mitigation planning goal for the habitats possibly impacted by the proposed PL 84-99 repairs in RD 765, Yolo County California.

COVER-TYPE	EVALUATION SPECIES	RESOURCE CATEGORY	MITIGATION GOAL
Riparian woodland	Swainson's hawk Wood duck Northern oriole	2	No net loss of in-kind habitat value or acreage.
Annual grassland	Red-tailed hawk	3	No net loss of habitat value while minimizing loss of in-kind habitat value.
Other	None	4	Minimize loss of habitat value

The evaluation species selected for the riparian woodland that would be impacted are Swainson's hawks, wood ducks, and northern orioles. Woody riparian vegetation provides important cover, and roosting, foraging, and nesting habitat for these species. Large diameter trees also provide nesting sites for species such as wood ducks and Swainson's hawks. Riparian woodland cover-types are of generally high value to the evaluation species, and are overall, extremely scarce (less than 2 percent remaining from pre-development conditions). Therefore, the Service finds that any riparian woodland cover-type that would be impacted by the project should be placed in Resource Category 2, with an associated mitigation planning goal of "no net loss of in-kind

habitat value." In addition, the Service's regional goal of no net loss of wetland acreage or habitat values, whichever is greater, would apply to these habitat types.

The evaluation species selected for the annual grassland cover-type is the red-tailed hawk, which utilizes these areas for foraging. This species was selected because of the Service's responsibility for their protection and management under the Migratory Bird Treaty Act, and their overall high non-consumptive values to humans. Annual grassland areas potentially impacted by the project vary in their relative values to the evaluation species, depending on the degree of human disturbance, plant species composition, and juxtaposition to other foraging and nesting areas. Therefore, the Service designates the annual grassland cover-type in the project area as Resource Category 3. Our associated mitigation planning goal for these areas is "no net loss of habitat value while minimizing loss of in-kind habitat value."

No evaluation species were identified for the "other" cover-type. This cover-type encompasses those areas which do not fall within the other cover-types such as gravel and paved roads, parking areas, buildings, bare ground, riprap, etc. Generally this cover-type would not provide any significant habitat value for wildlife species. Therefore, the Service designates the "other" cover-type in the project area as Resource Category 4. Our associated mitigation planning goal for these areas is "minimize loss of in-kind habitat value."

Based on our review of the proposed repair at this site, removal of trees on the levee toe and slope will cause adverse effects on both fish and wildlife species through loss of habitat. The repair plans we have reviewed do not include any woody vegetation plantings onsite or seeding and mulching of disturbed areas. At the time of the site visit it was not clear how the repairs would be performed (from the land, water, or combination) or how much actual disturbance (trimming and/or removal) to the riparian vegetation there would occur. In addition, there is instream woody material within and adjacent some of the repair sites which provides cover for juvenile fish in the Sacramento River. Disturbance of this habitat feature should be avoided or minimized to the extent possible.

Since these repair sites are in a reach of the river with mature riparian vegetation measures should be included in the project description to avoid impacts to migratory birds which may be nesting throughout the riparian corridor. Pre-construction surveys should be performed to determine if there are nesting migratory birds nesting in the area. If nests are located, work should be deferred until any young have fledged the nest

We believe habitat values in the project site could be improved with the project by implementing the measures (willow plantings, placement of instream woody material, etc) being constructed on the critical erosion sites both upstream and downstream of these proposed repairs. In addition to assist in making the project self-mitigation plantings and placement of instream woody material could be placed where there are gaps in the current riparian vegetation. Any large trees removed as part of the repair should be retained for placement as instream woody material.

On the March 22, 2007, site visit with NOAA Fisheries, Service, and Corps staff, several elderberry shrubs were identified in the project area. Prior to construction, these shrubs should

be inventoried and conservation measures be developed to avoid and/or minimize effects on the shrub which is the host plant for the valley elderberry longhorn beetle.

RECOMMENDATIONS

The Service recommends:

1. Avoid impacts to native trees, shrubs, and aquatic vegetation. Any trees or shrubs with a diameter at breast height of 6 inches or greater should be replaced on-site, in-kind with container plantings so that the combined diameter of the container plantings is equal to the combined diameter of the trees removed.

2. Avoid future impacts to the site by ensuring all fill material is free of contaminants.

3. Avoid impacts to migratory birds nesting in trees along the access routes and adjacent to the proposed repair sites by conducting pre-construction surveys for active nests along proposed haul roads and construction sites. Work activity around active nests should be avoided until the young have fledged. The following protocol from the California Department of Fish and Game for Swainson's hawk would suffice for the pre-construction survey for raptors.

   A focused survey for Swainson's hawk nests will be conducted by a qualified biologist during the nesting season (February 1 to August 31) to identify active nests within 0.25 miles of the project area. The survey will be conducted no less than 14 days and no more than 30 days prior to the beginning of construction. If nesting Swainson's hawks are found within 0.25 miles of the project area, no construction will occur during the active nesting season of February 1 to August 31, or until the young have fledged (as determined by a qualified biologist), unless otherwise negotiated with the California Department of Fish and Game. If work is begun and completed between September 1 and February 28, a survey is not required.

4. Minimize project impacts by reseeding all disturbed areas at the completion of construction with forbs and grasses.

5. Consult with the Service on project effects on the valley elderberry longhorn beetle and delta smelt and its critical habitat.

6. Contact the NOAA Fisheries for possible effects of the project on federally listed species under their jurisdiction.

7 Contact the California Department of Fish and Game regarding possible effects of the project on State listed species.

ENCLOSURE 1

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 070425103919

Database Last Updated: March 5, 2007

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio

Conservancy fairy shrimp (E)

Branchinecta lynchi

vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus

valley elderberry longhorn beetle (T)

Lepidurus packardi

vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris

green sturgeon (T) (NMFS)

Hypomesus transpacificus

Critical habitat, delta smelt (X)

delta smelt (T)

Oncorhynchus mykiss

Central Valley steelhead (T) (NMFS)

Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)

Critical Habitat, Central Valley spring-run chinook (X) (NMFS)

Critical habitat, winter-run chinook salmon (X) (NMFS)

winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)

Rana aurora draytonii

California red-legged frog (T)

Reptiles

Thamnophis gigas

giant garter snake (T)

Birds

Haliaeetus leucocephalus

bald eagle (T)

Candidate Species

Fish

Oncorhynchus tshawytscha

Central Valley fall/late fall-run chinook salmon (C) (NMFS)

Critical habitat, Central Valley fall/late fall-run chinook (C) (NMFS)

Quads Containing Listed, Proposed or Candidate Species:

CLARKSBURG (497A)

SACRAMENTO WEST (513D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species